

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) A liquid dispenser, which comprises:
a body part;
a cylinder part arranged inside the body part;
a suction plunger movably arranged inside the cylinder part;
a primary means for ~~moving~~achieving a suction movement of the suction plunger to receive a sample into the liquid dispenser at a first speed; and
a secondary means for ~~moving~~achieving an emptying movement of the suction plunger ~~at an increased speed during an emptying movement to~~ dispense the sample from the liquid dispenser at a second speed greater than the first speed,
wherein the primary means and secondary means are different from each other.

2. (Currently amended) The liquid dispenser according to claim 1, wherein the secondary means comprises:
an energy means for providing energy to move the suction plunger during the emptying movement;
a locking means for locking ~~an activation of~~ said energy means from providing the energy;
a launch means for ~~launching the activation of~~ activating a release of the locking means such that the energy from the energy means is provided to move the suction plunger during the emptying movement.

3. (Currently amended) The liquid dispenser according to claim 2, wherein:
the energy means ~~[[is]]~~ comprises a spring; and
the locking means ~~[[is]]~~ comprises a magnet.

4. (Currently amended) The liquid dispenser according to claim 3, wherein the launch means further comprises:
a function plunger disposed at an upper part of the body part of the liquid dispenser;

an actuator shaft with a magnetic property and which has a lower part and an upper part, wherein the actuator shaft is disposed such that the lower part of the actuator shaft is connected to the suction plunger and the upper part of the actuator shaft is connectable to a lower part of the function plunger via the magnet;

a launch means body which accommodates the upper part of the actuator shaft and the magnet;

a launch pin disposed at an upper part of the launch means body; and

an upper flange disposed in the upper part of the body part,

wherein

the suction plunger is disposed at a lower part of the body part,

the spring is arranged to be strained between the launch means body and the actuator shaft, and

the launch pin, the upper flange, and the spring are arranged so that when the function plunger is moved upward in relation to the body part until the launch pin contacts the upper flange, the contact between the launch pin and the upper flange causes separation of the actuator shaft from the magnet, whereby the spring forces the actuator shaft in a downward movement to increase the speed effect the emptying movement of the suction plunger ~~during the emptying movement~~ at the second speed.

5. (Currently amended) The liquid dispenser according to claim 1, wherein the liquid dispenser is an electronic dispenser, and the liquid dispenser further comprises a motor which drives the primary means.

6. (Currently amended) ~~The liquid dispenser according to claim 1, wherein the A~~ multiple-channel liquid dispenser apparatus comprising the liquid dispenser according to claim 1 comprises multiple channels.

7. (Currently amended) The liquid dispenser according to claim 1, wherein the liquid dispenser is a hand held pipettor, whereby the primary means is capable of being driven manually by a user to achieve the receiving movement.

8. (Currently amended) A method for pipetting a sample with a liquid dispenser comprising

a body part;

a cylinder part arranged inside the body part;

a tip disposed at an end of the cylinder part;

a suction plunger movably arranged inside the cylinder part;

a primary means for ~~moving~~ achieving a suction movement of the suction plunger to receive the sample into the liquid dispenser at a first speed; and

a secondary means for ~~moving~~ achieving an emptying movement of the suction plunger ~~at an increased speed during an emptying movement to~~ dispense the sample from the liquid dispenser at a second speed greater than the first speed,

wherein the primary means and secondary means are different from each other,

wherein the method comprises:

receiving the sample into ~~[[a]]the~~ tip of the liquid dispenser by the suction movement achieved by the primary means;

~~emptying~~ dispensing the sample from the tip of the liquid dispenser by the emptying movement achieved by the secondary means;

~~wherein the emptying movement for removing the sample from the tip is performed faster than the suction movement, and the increased speed during the emptying movement is achieved by the secondary means.~~

9. (Currently Amended) The method according to claim 8, further comprising:

prior to receiving the sample, activating the secondary means ~~which move the plunger to~~ store energy with which to achieve the emptying movement of the suction plunger; and

after receiving the sample, ~~and~~ releasing the secondary means to achieve the emptying movement ~~which move the plunger to accomplish the emptying movement of the plunger.~~

10. (Currently amended) The method according to claim 9, wherein

activating the secondary means comprises locking ~~an activation of an energy means~~ for providing the energy to ~~move~~ activate the emptying movement of the suction plunger during the emptying movement, using locking means; and

releasing the secondary means comprises ~~launching the activation of~~ activating a release of the locking means such that the energy from the energy means is provided to move the suction plunger during the emptying movement, using launch means.

11. (Currently amended) The method according to claim 10, wherein
said energy means comprises a spring; and
said locking means comprises a magnet; and
wherein the method further comprises:
when receiving the sample, moving the launch means upward ~~to receive the sample~~ when the magnet is in connection with an actuator shaft of the launch means;
when ~~removing~~ dispensing the sample, moving the launch means such that a launch pin of the launch means contacts an upper flange of the body part of the liquid dispenser;
continuing the upward movement of the launching means until the launch pin releases the actuator shaft from the magnet, whereby the spring forces the actuator shaft in a downward movement to ~~increase the speed of the suction plunger during effect~~ the emptying movement of the suction plunger at the second speed.

12. (New) A liquid dispenser for receiving and dispensing a sample, which comprises:
a body part;
a cylinder part arranged inside the body part;
a suction plunger movably arranged inside the cylinder part; and
a function plunger disposed at an upper part of the body part of the liquid dispenser and detachably connectable to the suction plunger,
wherein
the sample is received into the liquid dispenser by a receiving movement of the suction plunger at a first speed in a connected state with the function plunger, and

the sample is dispensed from the liquid dispenser by an emptying movement of the suction plunger at a second speed greater than the first speed in a disconnected state from the function plunger.

13. (New) The liquid dispenser according to claim 12, further comprising:
an energy storing device for providing energy to move the suction plunger during the emptying movement;
a locking device for locking the energy storing device from releasing the energy;
a launch device for releasing the locking device such that the energy is provided to move the suction plunger during the emptying movement.

14. (New) The liquid dispenser according to claim 13, wherein:
the energy storing device is a spring; and
the locking device is a magnet.

15. (New) The liquid dispenser according to claim 14, wherein the launch device further comprises:

an actuator shaft with a magnetic property and which has a lower part and an upper part, wherein the actuator shaft is disposed such that the lower part of the actuator shaft is connected to the suction plunger and the upper part of the actuator shaft is connectable to a lower part of the function plunger via the magnet;

a launch body which accommodates the upper part of the actuator shaft and the magnet;
a launch pin disposed at an upper part of the launch body; and
an upper flange disposed in the upper part of the body part,
wherein
the suction plunger is disposed at a lower part of the body part,
the spring is arranged to be strained between the launch body and the actuator shaft, and
the launch pin, the upper flange, and the spring are arranged so that when the function plunger is moved upward in relation to the body part until the launch pin contacts the upper flange, the contact between the launch pin and the upper flange causes separation of the actuator

shaft from the magnet, whereby the spring forces the actuator shaft in a downward movement to effect the emptying movement of the suction plunger at the second speed.

16. (New) The liquid dispenser according to claim 12, wherein the liquid dispenser is an electronic dispenser, and the liquid dispenser further comprises a motor which drives the receiving movement of the function plunger and the suction plunger.

17. (New) A multiple-channel liquid dispenser apparatus, comprising the liquid dispenser according to claim 12.

18. (New) The liquid dispenser according to claim 12, wherein the liquid dispenser is a hand held pipettor, whereby the receiving movement of the suction plunger is effected manually by a user.

19. (New) A method for pipetting a sample with a liquid dispenser comprising
a body part;
a cylinder part arranged inside the body part;
a tip disposed at an end of the cylinder part;
a suction plunger movably arranged inside the cylinder part; and
a function plunger disposed at an upper part of the body part of the liquid dispenser and detachably connectable to the suction plunger,
wherein the method comprises:
receiving the sample into the tip of the liquid dispenser by moving the function plunger in a connected state with the suction plunger in a suction movement at a first speed;
dispensing the sample from the tip of the liquid dispenser by moving the suction plunger in a disconnected state from the function plunger in an emptying movement at a second speed greater than the first speed.

20. (New) The method according to claim 19, further comprising:

storing a mechanical energy to be provided to the suction plunger during the emptying movement in an energy storage device, prior to receiving the sample;

locking the energy storing device from releasing the energy with a locking device; and

releasing the stored energy with a launch device such that the energy is provided to move the suction plunger during the emptying movement.

21. (New) The method according to claim 20, wherein

said energy storing device comprises a spring;

said locking device comprises a magnet; and

said launch device comprises

an actuator shaft with a magnetic property and which has a lower part and an upper part, wherein the actuator shaft is disposed such that the lower part of the actuator shaft is connected to the suction plunger and the upper part of the actuator shaft is connectable to a lower part of the function plunger via the magnet;

a launch body which accommodates the upper part of the actuator shaft and the magnet;

a launch pin disposed at an upper part of the launch body; and

an upper flange disposed in the upper part of the body part,

wherein

the suction plunger is disposed at a lower part of the body part,

the spring is arranged to be strained between the launch body and the actuator shaft, wherein the method further comprises:

when receiving the sample, moving the function plunger upward when the magnet is in connection with an actuator shaft of the launch device;

when dispensing the sample, moving the function plunger such that the launch pin contacts the upper flange; and

continuing the upward movement of the function plunger until the launch pin releases the actuator shaft from the magnet, whereby the spring forces the actuator shaft in a downward movement to effect the emptying movement of the suction plunger at the second speed.